CORRECTED ORIGINAL REISSUE LISTING OF CLAIMS

1. *(original)* A method for electroseismic prospecting of a subterranean formation, said method comprising the steps of:

(a) selecting a source waveform and corresponding reference waveform, said two waveforms being selected to reduce amplitudes of side lobes produced by correlating said source waveform with said reference waveform;

(b) generating said source waveform as an electrical signal and transmitting said electrical signal into said subterranean formation;

(c) detecting and recording seismic signals resulting from conversion of said electrical signal to seismic energy in said subterranean formation; and

(d) correlating said recorded seismic signals with said reference waveform.

2. *(original)* The method of claim 1, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

3. *(original)* The method of claim 2, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

4. *(original)* The method of claim 2, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

5. *(original)* The method of claim 2, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

6. *(original)* The method of claim 5, wherein said binary code is a maximal length shift-register sequence.

7. *(original)* The method of claim 2, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

8. *(original)* A method for electroseismic prospecting of a subterranean formation, said method comprising the steps of:

(a) constructing a first source waveform and a second source waveform from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequences in the case of said first source waveform, and by the second member of said Golay complementary pair in the case of said second source waveform;

(b) generating each of said two source waveforms as an electrical signal, and transmitting each said electrical signal, in turn, into said subterranean formation;

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

(c) detecting and recording seismic signals resulting from conversion of said electrical signals to seismic energy in said subterranean formation;

(d) correlating said recorded seismic signals from each of said source waveforms with said respective source waveform itself; and

(e) summing said pair of correlations of said recorded seismic signals and their corresponding source waveform.

9. *(original)* The method of claim 8, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

10. *(original)* The method of claim 8, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.

11. *(original)* An electrical signal for use in electroseismic prospecting of a subterranean formation, said signal having a waveform constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform have a frequency predetermined to give desired depth penetration of said subterranean formation, said binary code being selected to generate side lobe amplitudes below a predetermined level when the signal waveform is correlated with itself.

12. *(original)* The electrical signal of claim 11, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

13. *(original)* The electrical signal of claim 11, wherein said waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

14. *(original)* The electrical signal of claim 11, wherein said binary code is pseudo-random and said correlation is circular correlation.

15. *(original)* The electrical signal of claim 14, wherein said signal waveform has a predetermined length, said length being sufficient to further reduce said side lobe amplitudes to a predetermined level.

16. *(original)* The electrical signal of claim 14, wherein said binary code is a maximal length shift-register sequence.

17. *(original)* An electrical signal for use in electroseismic prospecting of a subterranean formation, said signal having a waveform constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation, said elements being pieced together with polarities sequentially specified by a maximal length shift-register sequence, said resulting signal waveform being modified such that resulting negative polarity elements are zeroed.

18. *(original)* A pair of complementary electrical signals for use in conjunction with each other in electroseismic prospecting of a subterranean formation, said signals having waveforms constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation, said elements being pieced together with polarities sequentially specified by one member of a Golay complementary pair of binary sequences in the case of one of said two electrical signals, and by the second member of said Golay complementary pair in the case of the other electrical signal.

19. *(original)* The electrical signals of claim 18, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

20. *(original)* The electrical signals of claim 18, wherein said waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

21. *(new)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

(a) generating a selected source waveform as an electrical signal and transmitting it into the subterranean formation, said source waveform and a corresponding reference waveform having been selected to reduce amplitudes of side lobes produced by correlation of the source waveform with the reference waveform; and

(b) detecting and recording seismic signals resulting from conversion of the electrical signal to seismic energy in the subterranean formation, in order to correlate said seismic signals with the reference waveform to produce a correlated record that resembles a seismic record from an impulsive force.

22. *(new)* The method of claim 21, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

23. *(new)* The method of claim 22, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

24. *(new)* The method of claim 22, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

25. *(new)* The method of claim 22, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

26. *(new)* The method of claim 25, wherein said binary code is a maximal length shift-register sequence.

27. *(new)* The method of claim 22, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

28. *(new)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

(a) selecting a source waveform and corresponding reference waveform, said two waveforms being selected to reduce amplitudes of side lobes produced by correlating said source waveform with said reference waveform;

(b) obtaining recorded seismic signals resulting from generation of said source waveform into an electrical signal and transmitting it into said subterranean formation where it was converted to seismic energy; and

(c) correlating said recorded seismic signals with said reference waveform.

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

29. *(new)* The method of claim 28, wherein said source waveform is constructed from a single element, said element consisting of a single full cycle of a preselected periodic waveform, said elements being pieced together with polarities sequentially specified by a preselected binary code, said periodic waveform having a frequency predetermined to give desired depth penetration of said subterranean formation.

30. *(new)* The method of claim 29, wherein the waveform element is a single cycle of a 60 Hz sinusoid.

31. *(new)* The method of claim 29, wherein the waveform element is constructed from selected phases of a three-phase power supply to have a desired frequency less than 60 Hz.

32. *(new)* The method of claim 29, wherein said binary code is pseudo-random, said source waveform has a predetermined length, said length being sufficient to further reduce said correlation side lobes to a predetermined level, said reference waveform is said source waveform, and said correlation is circular correlation.

33. *(new)* The method of claim 32, wherein said binary code is a maximal length shift-register sequence.

34. *(new)* The method of claim 29, wherein said binary code is a maximal length shift-register sequence with said resulting source waveform modified such that negative polarity elements in said source waveform are zeroed, said reference waveform is said source waveform before said negative polarity waveform elements are zeroed, and said correlation is circular correlation.

35. *(new)* A method for electroseismic prospecting of a subterranean formation, said method comprising:

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

(a) generating each of two source waveforms as an electrical signal, and transmitting each said electrical signal, in turn, into the subterranean formation, said source waveform being constructed by repeating a single element, said element consisting of a single full cycle of a periodic waveform, said periodic waveform having a frequency determined to give desired depth penetration of the subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequences in the case of one source waveform, and by the second member of the Golay complementary pair in the case of the other source waveform; and

(b) detecting and recording seismic signals resutling from conversion of each of the two electrical signals to seismic energy in the subterranean formation, in order to correlate said seismic signals with the source waveform used to generate them and then to sum the correlated record due to one source waveform with the correlated record due to the other source waveform, thereby producing a correlated record that resembles a seismic record from an impulsive force.

36. *(new)* The method of claim 35, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

37. *(new)* The method of claim 35, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.

38. *(new)* A method for electroseismic prospecting of a subterranean formation , said method comprising:

ORIGINAL REISSUE CLAIM LISTING *(Cont.)*

(a) constructing a first source waveform and a second source waveform from a single element, said element consisting of a single full cycle of a pre-selected periodic waveform, said periodic waveform having a frequency pre-determined to give desired depth penetration of the subterranean formation, said elements being pieced together with polarities specified sequentially by one member of a Golay complementary pair of binary sequence in the case of the first source waveform and by the second member of the Golay complementary pair in the case of the second source waveform;

(b) obtaining recorded seismic signals resulting from generation of each of said two source waveforms as an electrical signal and transmission of each electrical signal, in turn, into the subterranean formation where each was converted to seismic energy.

(c) correlating said recorded seismic signals from each of the two source waveforms with the corresponding source waveform itself, thereby producing two correlated records; and

(d) summing the two correlated records.

39. *(new)* The method of claim 38, wherein said waveform element is a single cycle of a 60 Hz sinusoid.

40. *(new)* The method of claim 38, wherein said Golay complementary pair of binary sequences are selected from other Golay pairs using the criteria of smallest autocorrelation side lobe amplitudes prior to summing.